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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/523,633

02/04/2005

Kouichirou Taniguchi

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EXAMINER

JACKSON, MONIQUE R

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/523,633	<b>Applicant(s)</b> TANIGUCHI, KOUICHIROU	
	<b>Examiner</b> Monique R. Jackson	<b>Art Unit</b> 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 August 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 8-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/14/08 has been entered. Applicant's amendment filed 7/21/08 has been entered. Claims 7 and 12 have been canceled. Claims 1-6 and 8-11 are pending in the application.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### ***Claim Rejections - 35 USC § 103***

3. Claims 1-6 and 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguchi et al (USPN 7,033,675) for the reasons recited in the prior office action and restated below.
4. As discussed previously, Taniguchi et al teaches a heat resistant film and metal laminate thereof suitable for electronic parts, comprising a film formed from a mixture of a polyetherimide (PEI) resin and a polyaryletherone resin, preferably PEEK, in a ratio of 30/70 to 70/30; and 5-50 parts of filler based on 100 parts of the PEI/PEEK mixture; wherein Taniguchi et al specifically teach that example PEI resins are the claimed A-1 formula, the claimed A-2 formula, or mixtures of two or more of the PEI resins; and the metal laminate can comprise the heat resistant film heat bonded with two copper foils as

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claimed (Abstract; Col. 3, line 32-Col. 5, line 13; Col. 5, line 33-57; Col. 7, line 36-42; Col. 8, line 1-Col. 9, line 3; Example.)

5. With respect to the added limitation "a heat bonding property at a temperature of 260°C or lower, the Examiner again notes that Taniguchi et al teach that the metal foil(s) can be laminated to the film via heat bonding and specifically teach examples utilizing a temperature within the claimed range. The Examiner also notes that Taniguchi et al specifically teach the claimed 70/30 to 30/70 PEI/PEEK ratio wherein any of the PEI resins disclosed by Taniguchi et al, particularly the claimed A-1 and A-2 structures, whether alone or as a mixture would provide a "heat bonding property" as claimed, when provided in the disclose PEI/PEEK ratio as the amorphous film, wherein Taniguchi et al further teach that the PEI/PEEK film is first heat bonded to the metal, preferably satisfying the relation I, and then subjected to the crystallization treatment to increase the value of the relation II thereby increasing the heat resistance by forming the crystallized film (Col. 5, line 58-Col. 8, line 34; Examples.) With respect to the edge tearing resistance in both directions, Taniguchi et al teach that the PEI/PEEK film provides improved edge tearing resistance and specifically recites that the edge tearing resistance is at least 45, more preferably at least 56.3, in both directions, and that when the value is smaller than 40 MPa, reliability of circuit connection is insufficient in a PCB or handling property of the board tends to be bad (Col. 7, lines 9-35.) Tanuguchi et al further teach that the relation I should be maintained to minimize the decrease in edge tearing resistance by the crystallization treatment (Col. 6, lines 6-21.) With respect to the PEI utilized, though Taniguchi et al teach that the PEI resin may be the claimed A-1, A-2, or mixtures thereof, Taniguchi et al do not specifically teach that the PEI resin is a mixture

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of 30/70 to 70/30 of the A-1/A-2 as claimed. However, one having ordinary skill in the art at the time of the invention would have been motivated to utilize routine experimentation to determine the optimum amounts of the two PEI resins to utilize in the mixture taught by Taniguchi et al, to provide the desired edge tearing properties, dimensional stability, and heat resistance for a particular end use, wherein a 50/50 mixture of the two PEI resins would have been obvious and would fall within the claimed range.

6. Claims 1-6 and 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002-144436 (JP'436) for the reasons recited in the prior office action restated below.

7. As discussed previously, JP'436 teaches a heat resistant film and metal laminate thereof suitable for electronic parts, comprising a film formed from a mixture of 50-80 parts polyetherimide (PEI) resin and 20-50 parts polyaryletherone resin, preferably PEEK, and 10-70 wt parts of filler based on 100 parts of the PEI/PEEK mixture; wherein JP'436 specifically teaches that example PEI resins are the claimed A-1 formula, the claimed A-2 formula, or mixtures of two or more of the PEI resins; and the metal laminate can comprise the heat resistant film heat bonded with two copper foils as claimed (Abstract; Paragraphs 0006-0007, 0011, 0018.) Though JP'436 teaches that the PEI resin may be the claimed A-1, A-2, or mixtures thereof, JP'436 does not specifically teach that the PEI resin is a mixture of 30/70 to 70/30 of the A-1/A-2 as claimed. However, one having ordinary skill in the art at the time of the invention would have been motivated to utilize routine experimentation to determine the optimum amounts of the two PEI resins to utilize, to provide the desired mechanical and heat resistant properties for a particular end

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use, wherein a 50/50 mixture would have been obvious to one skilled in the art at the time of the invention and would fall within the claimed range; and wherein the Examiner takes the position that the claimed edge tearing resistance and heat bonding properties would flow naturally from the teachings of JP'436.

### ***Response to Arguments***

8. Applicant's arguments filed 7/21/08 have been fully considered but they are not persuasive. The Applicant argues that the claimed range of 30/70 to 70/30 of the ratio of the two PEI resins is critical and provides alleged unexpected results over the teachings of the prior art; providing a graphical representation of the data from Table 1 of the instant specification in support. However, the Examiner respectfully disagrees and notes that the data actually suggests that the claimed range (0.3 to 0.7 on the graph) is not critical at all with respect to values outside the range (see particularly the point at 0.2) and that the edge tearing resistance in both directions follows a predictable or expected pattern, increasing with increased mixing ratio of A-1 to the total of A-1 and A-2. The Examiner also believes that the curve superimposed over the "Trans" data is misleading, noting that there are not enough experimental data points to suggest that the trans edge tearing resistance would actually behaving in this manner, particularly between 0.2 and 1; and more particularly between 0 and 0.2 which appears to show a slight dip or decrease in trans edge tearing resistance without having any data points between the two. In fact, the Examiner notes that a linear relationship can also be superimposed over the four trans data points, within experimental error; and hence the data fails to provide any clear showing of unexpected results with regards to edge tearing resistance over the teachings

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of the prior art. Therefore, the Examiner maintains her position that the claimed invention would have been obvious over the teachings of Tanuguchi et al and JP'436.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monique R. Jackson whose telephone number is 571-272-1508. The examiner can normally be reached on Mondays-Thursdays, 10:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Monique R Jackson/  
Primary Examiner, Art Unit 1794  
August 18, 2008